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10/073,666	02/11/2002	Paul C. Huang	1657.55US01	4597

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EXAMINER	
SOTOMAYOR, JOHN	
ART UNIT	**PAPER NUMBER**
3714	10

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/073,666	Applicant(s) HUANG ET AL.	
	Examiner John L Sotomayor	Art Unit 3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,8,10-13,15-20 and 22-26* is/are rejected.

7)☒ Claim(s) *6,14 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5,7*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. In response to the amendment filed 10 November 2003, claim 9 is cancelled and claims 1-8 and 10-26 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2,8,22,25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Pollak et al (US 6,106,297).

Regarding claims 1 and 22, Pollak et al discloses a virtual target range system and method comprising a plurality of weapon systems under computer control (Col 3, lines 1-8), means for implementing a three-dimensional graphical view of a target range (Col 2, lines 48-59 and Col 3, lines 42-58), means for calculating results from a weapon system fire exercise (Col 3, lines 25-32), and a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65).

Regarding claim 2, Pollak et al discloses a viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines 50-60 and Col 3, lines 1-8).

Regarding claim 8, Pollak et al discloses a virtual target system in which data is collected during an exercise that allows the calculation of fire events, collisions, impact points, and damage received (Col 3, lines 24-32).

Regarding claim 25, Pollak et al discloses a virtual target range system with means for implementing a virtual target range for use in conjunction with a plurality of weapons systems fire exercises (Col 2, lines 21-34, means for calculating results of the weapon system fire exercises (Col 3, lines 25-32) and means for a spotter to view three-dimensional results of the weapon system fire exercises (Col 3, lines 43-58).

Regarding claim 26, Pollak et al discloses means for collecting data about a live weapon system fire exercise (Col 3, lines 5-12).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 3,4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollak et al in view of Blume (US H1618).

Regarding claim 3, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35). Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sea buoys may be interconnected through a GPS system to form a sonobuoy field that transmits position of all of the buoys to a receiving vehicle (Col 1, lines 45-62). Therefore, it would have been obvious to one of ordinary skill in the art to provide a target range system as disclosed by Pollak et al with the capability to attach a plurality of weapons and targeting subsystems including a field of sonobuoys that transmits position of all of the buoys to a receiving vehicle to form a sea going target field as taught by Blume for the purpose of providing target and results information for all weapons landing among the sonobuoys.

Regarding claim 4, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35). Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sonobuoys may include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor (Col 2, lines 22-40 and Col 4, lines 1-14). Therefore, it would have been obvious to one of ordinary skill in the art to provide a virtual target range system with the capability to attach a plurality of weapons and targeting subsystems as disclosed by Pollak et al and including a field of sonobuoys to include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor as taught by Blume produces a naval targeting system that feeds precise target result information to the simulation manager for display to exercise operations specialists.

Regarding claim 15, Pollak et al discloses a virtual target range system and method comprising a plurality of weapon systems under computer control (Col 3, lines 1-8), means for implementing a three-dimensional graphical view of a target range (Col 2, lines 48-59 and Col 3, lines 42-58), means for calculating results from a weapon system fire exercise (Col 3, lines 25-32), and a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65). Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sonobuoys may include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor (Col 2, lines 22-40 and Col 4, lines 1-14). Therefore, it would have been obvious to one of ordinary

skill in the art to provide a virtual target range system and method comprising a plurality of weapon systems under computer control, means for implementing a three-dimensional graphical view of a target range, means for calculating results from a weapon system fire exercise, a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system, and the capability to attach a plurality of weapons and targeting subsystems as disclosed by Pollak et al and including a field of sonobuoys to include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor as taught by Blume produces a system that uses sea based sensors to provide fire exercise results information for real-time and future analysis.

6. Claims 5,7,10,13,16,18-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollak et al in view of Tye (US 4,308,015).

Regarding claims 5, 7 and 13, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises including visual object orientation (Col 2, lines 21-35 and Col 3, lines 42-58). Pollak et al does not specifically disclose that one of the subsystems is an aerial subsystem having a combination of a camera system and radar. However, Tye teaches an aerial warfare system in which the air vehicles are outfitted with camera and radar systems (Col 3, lines 28-30 and Col 4, line 13) to provide data to the target range system (Col 3, lines 57-66). Therefore, it would have been obvious to one of ordinary skill in the art to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises as disclosed by Pollak et al and in which air vehicles are outfitted with camera and

radar systems to provide data to the target range system as taught by Tye produces a system in which aerial observations of live fire exercises may be transmitted to the target range system in real time and recorded for later analysis.

Regarding claim 10, Pollak et al discloses a Viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines 50-60 and Col 3, lines 1-8), means for implementing a three-dimensional graphic view from the plurality of databases (Col 3, lines 24-25), means for calculating results of the fire exercise from data collected by the system (Col 3, lines 26-32), and a virtual target range system comprising a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65).

Regarding claim 16, Pollak et al discloses a viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines 50-60 and Col 3, lines 1-8).

Regarding claim 18, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises (Col 2, lines 21-35 and Col 3, lines 42-58). Pollak et al does not specifically disclose that one of the subsystems is an aerial subsystem having a combination of a camera system and radar and that impact points are determined relative to the aerial vehicle. However, Tye teaches an aerial warfare system in which the air vehicles are outfitted with camera and radar systems (Col 3, lines 28-30 and Col 4, line 13) to provide data to the target range system (Col 3, lines 57-66) and that target points are determined relative to an

aerial vehicle (Col 3, lines 45-66). Therefore, it would have been obvious to one of ordinary skill in the art to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises as disclosed by Pollak et al and in which air vehicles are outfitted with camera and radar systems to provide data to the target range system showing impact points determined relative to the aerial vehicle as taught by Tye produces a system in which aerial observations of live fire exercises may be transmitted to the target range system in real time and recorded for later analysis to enable a more accurate and useful evaluation of a pilot's performance than prior systems allowed.

Regarding claim 19, Pollak et al discloses a viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines 50-60 and Col 3, lines 1-8).

Regarding claim 20, Pollak et al discloses a virtual target range system and method comprising a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65).

Regarding claim 24, Pollak et al discloses a virtual target range system and method comprising a means for calculating results from a weapon system fire exercise (Col 3, lines 25-32).

7. Claims 11,12,17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollak et al in view of Tye in further view of Blume.

Regarding claims 11 and 17, Pollak et al/Tye discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35). Pollak

et al/Tye does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sea buoys may be interconnected through a GPS system to form a sonobuoy field that transmits position of all of the buoys to a receiving vehicle (Col 1, lines 45-62). Therefore, it would have been obvious to one of ordinary skill in the art to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems as disclosed by Pollak et al/Tye and including a field of sonobuoys that transmits position of all of the buoys to a receiving vehicle to form a sea going target field as taught by Blume for the purpose of providing target and results information for all weapons landing among the sonobuoys.

Regarding claim 12, Pollak et al/Tye discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35). Pollak et al/Tye does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sonobuoys may include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor (Col 2, lines 22-40 and Col 4, lines 1-14). Therefore, it would have been obvious to one of ordinary skill in the art to provide a virtual target range system with the capability to attach a plurality of weapons and targeting subsystems as disclosed by Pollak et al/Tye and including a field of sonobuoys to include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor as taught by Blume produces a naval targeting system that feeds precise target result information to the simulation manager for display to exercise operations specialists.

Regarding claim 23, Pollak et al/Tye discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35) and a virtual target system in which data is collected during an exercise that allows the calculation of fire events, collisions, impact points, and damage received (Col 3, lines 24-32). Pollak et al/Tye does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sea buoys may be interconnected through a GPS system to form a sonobuoy field that transmits position of all of the buoys to a receiving vehicle (Col 1, lines 45-62). Therefore, it would have been obvious to one of ordinary skill in the art to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems as disclosed by Pollak et al/Tye and including a field of sonobuoys that transmits position of all of the buoys to a receiving vehicle including data collected during an exercise that allows the calculation of fire events, collisions, impact points from a sea going target field as taught by Blume for the purpose of providing target and results information for all weapons landing among the sonobuoys.

Allowable Subject Matter

Claims 6, 14 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 10 November 2003 have been fully considered but they are not persuasive. Applicant's representative argues that the Pollak et al reference does not contain a spotter subsystem for recording and calculating the result of a live fire exercise and that this spotter subsystem is recited in independent claims 1 and 22. Applicant's representative further argues that the claimed recitation of a spotter subsystem includes the capability for weapon system personnel to train in a realistic or hardware-in-the-loop environment.

The Examiner would like to point out that the recitation of claims 1 and 22 is for a naval virtual target range system and method and that the view presented to weapons system personnel is that of a virtual three-dimensional graphical view of the target range. In addition, the claims recite a spotter subsystem used to view three-dimensional graphic results of a naval weapon system fire exercise, not the means for implementing such a spotter subsystem. These claims do not distinguish or recite a difference between a virtual fire exercise and a live fire exercise using real munitions. In addition, the Pollak et al reference does recite the calculation and presentation of the results of a fire exercise in a virtual target range, thus performing the true function of a spotter subsystem as recited in the claims. Therefore, in the broadest interpretation of the claims the Pollak et al reference presents all of the limitations recited in these claims.

For a response to the rest of the remarks presented by applicant's representative please see the above text of the instant office action.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Sotomayor whose telephone number is 703-305-4558. The examiner can normally be reached on 6:30-4:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Hughes can be reached on 703-308-1806. The fax phone number for the organization where this application or proceeding is assigned is 703-746-8361.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4558.

jls
January 12, 2004

S. THOMAS HUGHES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700